Elementary Physics I – Fall 2011 Updated 17 Aug 2011

Course: Lecture:	Physics 101N 4 credits T,Th 9:30–10:45 Oceanography and Physics (OCNPS) Room 200			
Instructor	Dr. Lawrence Weinstein, University Professor of Physics Office: Physical Sciences Building (PSB) 2100H, Phone: 683–5803 Email: my last name @odu.edu, web page: http://www.lions.odu.edu/~lweinste/ Office Hours: Tuesday 11:00–12:00 in PSB 2100H, Thursday 11:00–12:00 in the Physics Learning Center, and by appointment			
	If you are confused or don't understand something, get help immediately . You can avoid large problems by getting help early.			
Web Page:	: http://www.lions.odu.edu/~lweinste/courses/101f11.html and on blackboard			
Required:	Conceptual Physics, 11th ed, by P. Hewitt, Addison Wesley, 2010. Physics 101 Lab Manual, ODU Physics Dept Turning Point ResponseCard RF or RF-LCD ("clicker") from the bookstore or elsewhere Web Aggirm, Aggar, Cada (included in new toutback package)			
Optional:	The Cartoon Guide to Physics, by Gonick and Huffman. Guesstimation, by Weinstein and Adam Fear of Physics (or any other book) by Lawrence Krauss How Things Work (and other books) by Louis Bloomfield			
Grading:	 This course is uncurved. Everyone can get an A. 20% - Homework 5% - Clicker Quizzes 30% - 2 Exams, 15% each 30% - Final Exam 15% - Laboratory Expected grade requirements: A: 90–100, B: 75–89, C: 60–74, D: 50-59 			
Exams	Tentative midterm dates: Sept 29 and Nov 10 Closed book exams. Bring a calculator and a one page crib sheet Make-up exams will be given only under extreme circumstances. If you have to miss a test, contact me as soon as possible. Final Exam: 8:30–11:30 AM, Tuesday Dec 13, 2011, Room 200 OCNPS			

Homework You need to practice to learn anything, from painting to basketball to physics. Doing the homework problems **yourself** helps you learn the material and incidentally helps your grade!

Web assign course code: odu 2597 8821

Homework must be turned in on the internet via WebAssign (for details see the course web page). WebAssign can not accept late homework. You are responsible for logging in to WebAssign frequently to keep up-to-date on new postings, deadlines and any messages. Don't wait until the last day! Do it early if you know you won't have time close to the deadline. Your lowest homework grade will be dropped.

Numerical and multiple-choice answers will be graded immediately by Web-Assign. Exercises with written answers will be graded later.

Work out the problem on paper first, before putting answers into Web-Assign. Check your results to see if the magnitude makes sense. Check your units – no answer is complete without the proper units. Enter all answers with at least 3 significant digits. WebAssign will automatically randomize some input values given, so no two students will have the same exact answer.

Homework is not a test. You are encouraged to work together. However, you may not copy another student's final or almost-final answers and all explanations must be in your own words.

Use of published homework solutions is considered cheating.

Laboratory: Oceanography and Physics, Room 140. See Laboratory Schedule for details. Labs start the **first** week of class.

Students who fail the laboratory will fail the entire course.

Attendance is mandatory. You will be allowed one (1) unexcused absence during the semester. If you have two or more unexcused absences, you will fail the entire course. It is your responsibility to inform your instructor of any absence and to arrange to make up the missed work.

Read the assigned experiment before the lab begins and bring the lab manual, calculators, graph paper, etc.

Laboratory reports should be prepared according to the instructions in the Physics 101 Laboratory Manual. Your lab instructor will also discuss the format for your lab reports and the grading procedure.

Extra Credit

There will probably be two extra credit projects this semester.

The Virginia Children's Festival, October 1, 9–4, Town Point Park, Norfolk. The Physics Department will bring a lot of our favorite demonstrations and explain them to children and their parents. Come help for two hours.
 The Pumpkin Drop, October 25 or 27, 12:30–1:30, BAL. The Society of Physics students will drop pumpkins from the top of BAL. Build a device to catch a pumpkin without damaging it. Answer some questions explaining

the physics of the drop and the catcher. Extra credit depends on the quality of the pumpkin catcher and how well you answer the questions. Teams of up to four can participate.

Physics Learning Center

The Physics Learning Center, located in the second floor lobby of the new Physical Sci- ences Building (adjacent to OCNPS) is a place for you to get together to work on your homework and get help, if needed, from physics faculty and graduate students. No appointment is necessary. It will be open all week 9–5. I will be in the Learning Center every Thursday after class.

COURSE SYLLABUS

subject to change

Week	Chap	Comment	Lab
Aug 29	1-2		Lab Intro (mandatory)
Sep 5	2		EX01 Math Review
Sep 12	3		EX02 Velocity
Sep 19	4		EX03 Acceleration
Sep 26	5	Midterm	EX04 Newton's 2nd Law
Oct 3	6		EX05 Friction
Oct 10	7	Fall Break	No Lab
Oct 17	8		EX06 Resolution of Forces
Oct 24	9, 10		EX07 Momentum
Oct 31	22		EX08 Projectile Motion
Nov 7		Midterm	EX09 Torque
Nov 14	23		EX10 Rotation
Nov 21		Thanksgiving	No Lab
Nov 28	24		EX11 Potential, Current and Resistance
Dec 5	25	Review	EX12 Magnetic Force

Text: Conceptual Physics, 11th Edition, Hewitt.

Other Information

Is this Course for YOU?

If you tend to faint at the sight of any mathematical equation, this course may not come easy. If you have too heavy a course load already and cannot commit substantial time and effort to this course, you may be disappointed by the outcome. You should have some curiosity about the natural world, some willingness to do experiments (labs), and at least some mathematical background (high school level math and geometry). If you think this applies to you, then this course should reward you with a deeper understanding of the world around you (not to mention a reasonable grade – but no guarantees!). In that case, this course is definitely for you!

Note that you only have until the end of the first week of classes to withdraw with full tuition refund, and only one more week to withdraw with 1/2 tuition refund. It pays (liter- ally!) to figure out right away whether or not you plan to continue the course.

Some good advice

It is important for you to strive for an active understanding right from the beginning. This means that you should not just memorize random facts, but apply your new knowledge to solve problems. (Whether you are driving your car, dropping a stone from a bridge or turning on the AC in hour house, there are hundreds of occasions every day where you can observe Physics principles at work – try to spot them and think about how what you learned in this course might apply.)

Don't let things slip – it's much harder to catch up later! It is very important that you do the homework problems (apart from their contribution to the final grade). Since physics is a science based on observations it is also very important to do the laboratory experiments and to be well prepared for them.

Here are some ideas how you can get the most of the course:

– Go to the course website at TBA often and read all announcements, lecture notes, etc.

- Come prepared: read up in the book on the topics to be discussed in the coming lecture. That way, you will already know what to expect, you can concentrate on the important concepts (instead of jotting down everything I say), and you can come up with questions you want to get answered in the lecture.

- Come to the lectures. They are not mandatory, but unless you are unusually bright (and have some extensive Physics background), you will not be able to separate the really important topics from the rest just by reading the book. Also, if you miss the lectures, you'll miss the "clicker quizzes" which count towards the final grade. Lecture notes will be posted but are not meant to substitute for attendance. - Do the homework. Not only do you get credit for it, it is also the best preparation for the exams. For that reason, it is also a bad idea to mindlessly copy somebody else's homework (and it's against the honor code).

– If you need help, go to the Physics Learning Center. I'll be there every Tuesday after class, and other staff will be there to help pretty much all the time.

- Take the lab work seriously. Prepare ahead of time (at least read up in the book about the relevant concepts and read the lab manual) and try to do the experiments well (of- ten there will be time to redo them with slightly different parameters). Of course, lab attendance is **mandatory** (you may not miss more than 1 lab unless you have a valid excuse – e.g., a medical emergency).

- Independent study: Try to do some extra problems (especially the "Review Questions") from the book. Also work some problems in the companion book "Practicing Physics". Check out some of the suggested alternative material (including on the Web). Meet with other students (form study groups of 2-4 people) to discuss the content of the lecture and exchange ideas. (You may discuss the homework with other students, but you may not ask them for their completed solution.) Go to the library and read up on the additional literature. Of course, you'll also have to review the material for the exams.

- Go to the office hours. The TA and I are glad to help you with any question (about Physics!) or to get your feedback, and we are flexible when and where to meet. All you have to do is ask!

My interpretation of the Honor Code

1) I encourage students to discuss material and content of the lectures and homework problems with each other

– You may pose questions about a problem to another student (as well as the TA's, myself and the Learning Center staff) or ask for hints.

 $\,$ – You may discuss verbally the content and methods of solution of a problem.

- If you need to use writing to explain something to another student (or vice versa), use a black/whiteboard or other clearly non-permanent means (scratch paper).

2) I consider it unethical and a violation of the honor code to simply use another student's solution or let somebody else solve the problem for you.

- You have to contribute significant work to each problem yourself.

– You need to make sure that you clearly understood every step of the solution. This is a useful test of whether getting outside help is allowed; I may use it to prove or disprove claims of unethical copying.

– All written submissions must be prepared by yourself.

– If you find the solution to a problem in a book or on the web, you must quote your source(s) and reformulate the solution in your own words

(using the nomenclature and symbols introduced in class). If you copy an existing solution verbatim without attribution, you are violating the Honor Code.

3) You may not accept or give any help during exams, including the use of any written material other than the Formula sheet. However, you may ask me if anything is unclear!

In this context, I want to remind everyone of the University policy: Any official sanction for cheating, including the assignment of a grade of F for a quiz or for a course as a penalty for cheating, will appear on the student's permanent academic transcript! Any breach of the rules above will be considered to be "knowingly".

Finally, I direct your attention to the rules of "CCC" (College Classroom Conduct) published by the Office of Student Judicial Affairs. In particular, I will not condone interruptions of lectures by students receiving cell phone calls, entering or leaving during the allotted classroom time, or engaging in other distracting or disrespectful behavior. On the other hand, I strongly urge you to participate actively in the class by asking questions or answering my own ones, volunteering for experiments etc.